

OPTICAL BEAM SCANNING SYSTEM FOR COMPACT IMAGE DISPLAY OR IMAGE ACQUISITION

Abstract of the Disclosure

An optical fiber having a reduced cross-sectional region adjacent to its distal end,
5 which is fused to an optical component, is vibrated, rotating the optical component to
scan a region. The optical component has a back focal point that is substantially
coincident with an effective light source of the optical fiber, so that the light emanating
from the optical component is either substantially collimated or convergent. The optical
component is either a ball lens, a drum lens, a graded index lens, or a diffractive optical
10 element. A vibratory node is also made substantially coincident with the back focal point
of the optical component, producing a compact scanner with extensive field of view. The
optical fiber is preferably reduced in cross-sectional area after the optical component is
fused to the optical fiber, by immersion in a three-layer etch apparatus having an
etch-stop layer, an etch layer, and a solvent layer.